

NaOClean®

High pressure sterilizing washer - NaOClean

Manual

Strong Disinfecting-Deodorizing Power

Prevent Disease such as Food poisoning

Safe to Human Body

Harmless and Environment Friendly Product

Almost No Residual Chlorine



www.naoclean.com

Please read the manual before installing or using the device.



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- Replacement period
& Block diagram

* Certifications

1. Cautions for using

• **Precautions for safe operation** ※ Please observe the following instructions to prevent unexpected hazards of damage and hurt.



You have to be careful while using the device. Momentary carelessness may lead to a serious accident.

- Do not use a damaged power cord or a socket.
- Do not touch the power plug with a wet hand.
- You have to use approved single socket not a multi-socket.
The socket may be overheated.
- If you have to use an extension cord inevitably, do not exceed the rated capacity and use a waterproofed electric cord.
- You have to use a grounded socket and approved power cord.
- Do not pull the only power cord from a distance.
- If the power cord or any other important part is damaged, do not attempt to use the device.
- Please check the every hose is perfectly connected.
- To avoid the danger of falling, keep the device on the flat ground and maintain level of the device.
- Please fix the device when you spray the disinfectant, because it needs to be grounded.
- Keep the device away from the children or unskilled people.
- You can prevent from unexpected situations by keeping your pace constantly while using the device.
- Do not disconnect the gun from the hose as long as the pressure remains. Because the high-pressure water inside the hose may spurt and hurt the user.
- Do not leave the motor idling for a long time. A long time idling may cause the damage of the motor or other parts.
- When you are not using the device, please turn off the *Power* switch.
- Beware of sharp edges of the motor cover.
- Never use the device with any chemical that is not described.
- Do not attempt to disassemble, repair or alter the device.
(You may suffer from electric shock or hurt.)

※ Check to see if the device is working properly at first.

1. Cautions for using

• Correct handling

- Turn off the power to prevent electric shock if the device is not working. And request for repair service.
- Before checking the device, shut down the power to prevent unexpected accidents.
- Wear a protective goggles while using the device. Small pieces of debris may be flying around.
- Please stop using the device when the surrounding temperature drops to below zero degrees, and drain water inside the tank completely.
- Do not keep the device where ventilation does not function properly or in oily, smoky, humid, dusty and water splashing places.
- Never spray water or any solution on the main unit or a person.
- Keep the *Spray gun hose* away from the hot air exhaust.
- Unplug before moving the device.
- Be careful when you fill the water or clean inside the tank, because there is a water level controller.
- Only use the tap water or suitable for drinking water standards.
- Do not use hot water.
- When you are not using disinfecting water, please turn off *Disinfectant* button.



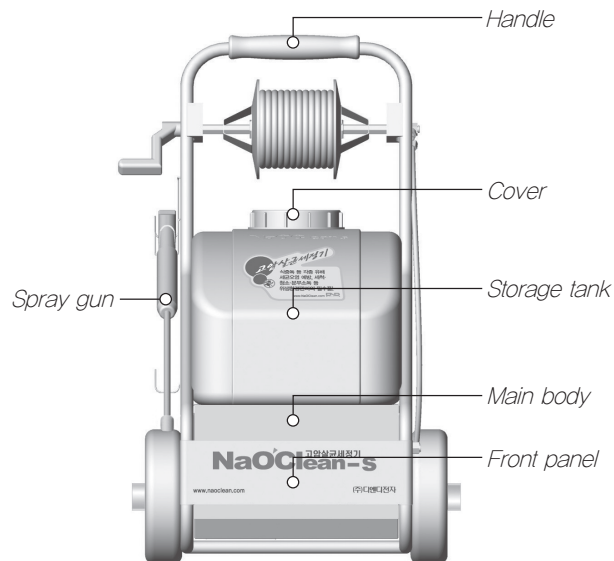
Warning

• Do not operate the device in the following cases

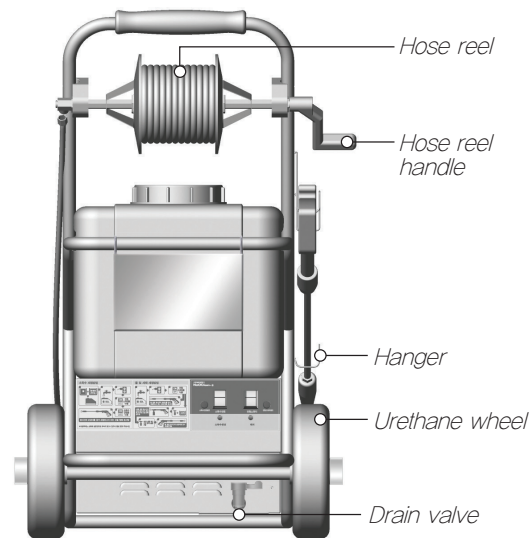
- When the motor speed has changed.
- When the nozzle pressure has changed.
- When the operation of the pump is unstable.
- When you find a flame or smoke in a confined space.
- When you experience excessive vibration.
- When the device is exposed to rain or bad weather.

2. About product > Components / Specification & Features / How to use / Applications

• Front

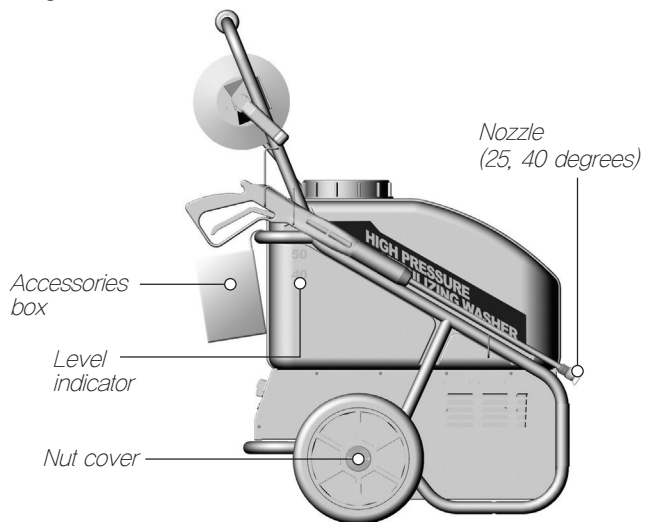


• Back

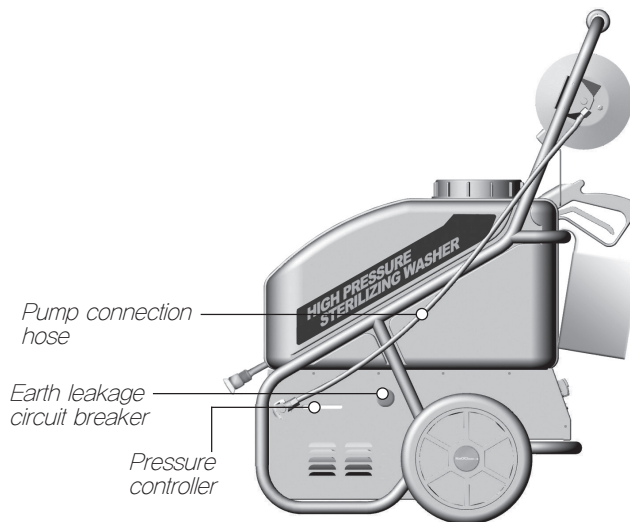


2. About product > Components / Specification & Features / How to use / Applications

• Right



• Left



Accessories



Measuring
cup



Dilution
bottle



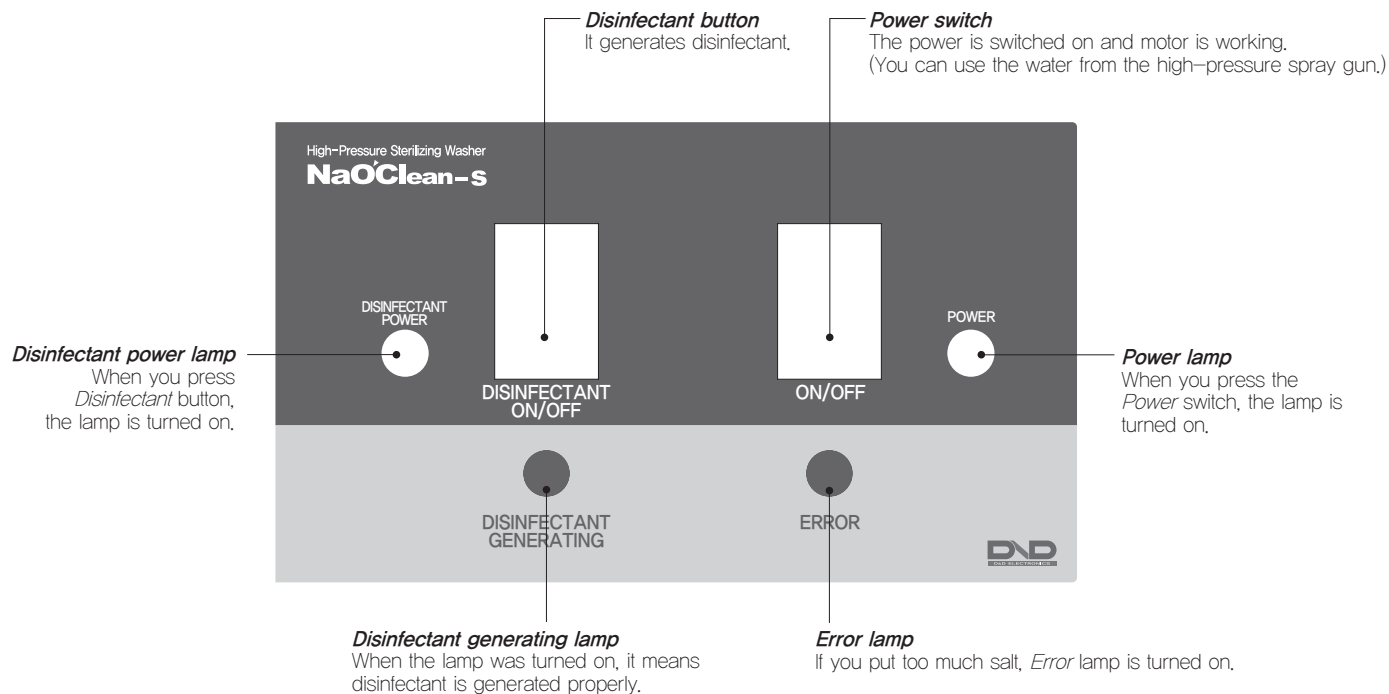
Oil tray & Bottle
for changing the
pump oil



Detergent bottle
(Option)

2. About product > Components / Specification & Features / How to use / Applications

•Control panel



2. About product > Components / Specification & Features / How to use / Applications

• Specification

※ Check the voltage before using.

Model	DES-WA50
Dimension	W615 X D767 X H1005mm
Rated Voltage	AC 230V, 50Hz / approx 2.2kW
Weight	About 42kg
Storage tank	50L
Max pressure	100 bar
Flow rate	About 7L/min. (Autogenerate)
Electrolysis method	Without membrane
Active chlorine	70~100ppm (Adjustable)
pH	7.0~7.5pH
Additive	Refined salt (Salinity more than 88%)
Condition of use	Surrounding temperature 5~40℃ Water temperature 5~30℃ Humidity less than 95% RH
Nozzle	High-pressure nozzle (25/40 degrees)
Length of hose	10m
Accessories	Measuring cup, Dilution bottle <i>Detergent bottle (Option)</i>

• Features

1) Convenience and economics.

- Finish the cleaning, sterilizing and deodorizing at once.
- Save the water consumption drastically.
- Very low operation cost by replacing expensive chemicals.

2) Powerful sterilizing, deodorizing and cleaning capability.

- Remove and clean various harmful germs and foreign matters.
- Sterilize and deodorize processing facilities and equipments.
- Sterilize floor, wall and facilities of working spaces.
- Remove bad odor in toilets and bathrooms.
- Prevent slipperiness with high-pressure based powerful cleaning capability.

3) Environment-friendly and highly stable.

- No secondary contamination.
- Do not use chemical agent.
- Do not remain strong smell.
- No residual toxicity.
- Safe for humans and environment.

4) Portability and effectiveness.

- Easy to move with the storage tank's wheel.
- Conveniently usable in a small or narrow spaces with high-pressure spray gun.
- Practically no restriction of operation as far as electric power is available.

2. About product > Components / Specification & Features / How to use / Applications

• Portability

Fill the tap water into the storage tank as you need, and lower the moving handle about 15 degrees and then push it for easy moving. (Refer to the picture)



• Choose the type of spray nozzle

There is an angle of 25 degrees (green nozzle) and 40 degrees (white nozzle).

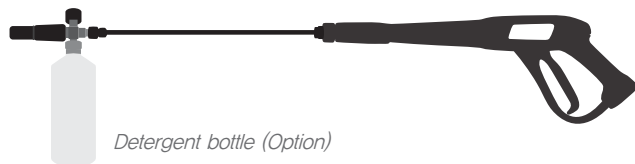
How to change the nozzle



Push the connector to the back and change the nozzle. After that, turn it back as original place. **※Do not put your face on the front of the gun when the device is working.**

• Using a detergent bottle (Option)

If you want to remove some greasy dirt in your working places, use a detergent bottle (Option). (Refer to the page 12)



Detergent bottle (Option)

• When it's difficult to roll or unroll the hose

If the hose is too stiff to roll or unroll on the hose reel, turn off the power, release the pressure by pulling the spray gun trigger and then roll or unroll the hose.

2. About product > Components / Specification & Features / How to use / Applications

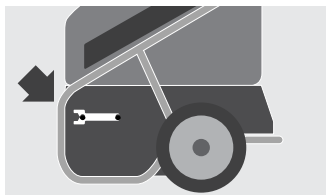
•How to adjust the pressure

At first, pressure is set as 100bar.

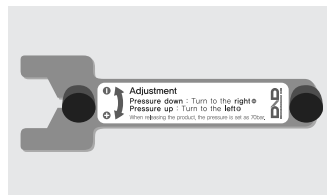
TURN LEFT
decrease pressure



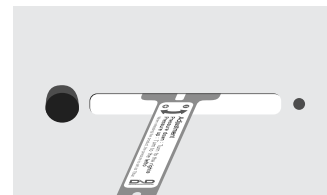
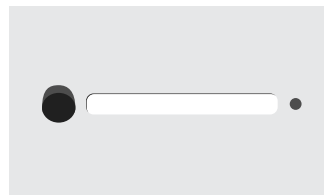
TURN RIGHT
Increase pressure



Use the pliers on the lower part.



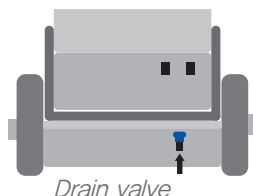
Loosen one screw and take the pliers out.



Adjust the pressure by turning the pliers from side to side into the hole.

•How to drain

You have to drain remaining saline solution after using the device by pulling the gun trigger or opening the drain valve at the base of the body.

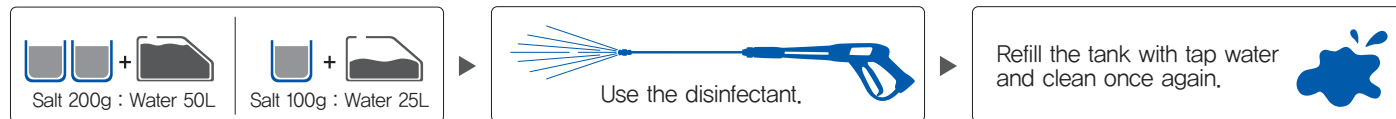


•After using the device

- After using the disinfectant, please refill the tank with tap water (about 5L) and clean inside the device by running the device once again. (It prolongs the life time of the device.)
- Please drain water inside the storage tank when the device is not used for a long time.
- When the surrounding temperature drops to below zero degrees, please stop using the device and completely drain water inside the tank.

2. About product > Components / Specification & Features / How to use / Applications

•How to clean with disinfectant



1. Measure a suitable amount of clean, refined salt with 88% salinity (or higher) with the measuring cup, and put it into the dilution bottle.
2. Add tap water to 2/3L of the bottle and melt them completely.
3. Pour it into the tank and add tap water to 25 or 50L line.
4. Connect the power plug.
5. Press the main *Power* switch. (At the initial operation, spray may not work properly with idling of the motor because water has not been supplied to the pump yet. In such a case, pull the spray gun trigger several times until the spray works normally.)
6. If there is a problem with the high-pressure spray, wait a few moments until the air inside is completely removed before attempting to use the device again.
7. Press the *Disinfectant* button.
8. Hold the spray gun with two hands (because of high-pressure), aim it toward your target area and shoot it. (You can choose the type of spray nozzle.)
9. After using the disinfectant, please refill the tank with tap water and clean inside the device by running it once again.

※Precautions for cleaning with disinfectant

- Make sure to dissolve the prescribed amount of salt completely before pouring it into the tank. (Too much salt may cause an error preventing disinfectant from being generated. In such a case, turn off the *Disinfectant* button, drain some of the salt water from the tank by pulling the spray gun trigger and add some water in the tank to lower the concentration of the salt water. After that, turn on the *Disinfectant* button, and try again.)
- Do not leave salt water in the storage tank for an extended period of time.
- Make sure to use just the right amount of disinfectant as needed.
- If it is used on ferrous material, rinse with clean water after using. It may cause corrosion. (Refer to page 16)
- When you are not using disinfectant, turn off the *Disinfectant* button.
- If the device is not powered up even after it is properly plugged up and switched on, turn on the leakage circuit breaker. (*ELCB*) (Refer to page 6)



• How to wash with water

1. Add tap water as much as needed in the tank.
2. Connect the power plug.
3. Press the main *Power* switch.
4. Hold the spray gun with two hands (because of high-pressure), aim it toward your target area and shoot it. (You can choose the type of spray nozzle.)

※Precautions for cleaning with water (or detergent)

- Do not operate the device while the tank is empty.
- Do not turn on the *Disinfectant* button.
- Do not leave the motor idling for a long time. (The motor may be over-heated and broken down.)
- Before operating the device, press the *Power* switch and pull the gun trigger several times. (The device may not run at the first attempt due to air.)

• How to clean with detergent (Option)

1. Add tap water as much as needed in the tank.
2. Remove the nozzle from the front of the gun, and replace it with the detergent bottle. (*Detergent bottle is option.*)
3. Connect the power plug and press the main *Power* switch.
4. Spray detergent on areas stained with greasy dirt.
5. After some moment, remove the detergent bottle and replace it with original nozzle.
6. Hold the spray gun with two hands (because of high-pressure), and pull the gun trigger. Remove greasy dirt by spraying water and rinse with water.

2. About product > Components / Specification & Features / How to use / Applications

Machines & Equipments

Clean the fish, meat, food processing equipments

The mobility of this model enables users to remove effectively the bacteria or microbe. Especially it is mainly recommended to clean the fish and meat processing equipments after work. A strong high— pressure removes the food particles stuck in a small niche and bad odor completely. It prolongs the life time of your processing equipments and prevents secondary pollution generated from them.



Work places

Floor, drain, stairs and all around the workplaces.

It disinfects effectively and removes bad odor in many places where should be cleaned including fish & meat processing factories, feeding facilities, kitchens, floor, drain and all around the workplaces.



Public facilities

Prevent of diseases and keep the pleasant environments.

Deodorize, sterilize and clean the places required the public hygiene such as the toilet, sauna, public bathrooms and swimming pools.

3. Using refined salt > **Cautions** / Making saline solution

• Cautions before using salt

1. Dissolve a proper amount of refined salt completely in the water.
2. Make sure that salt is completely dissolved before pouring it into the tank.
3. The salinity of salt should be 88% or higher.
4. Never use roasted salt or salt used for cooking that contains citric acid or amino acid.

• How to take care of an excessive salt error

1. Turn off the *Disinfectant* button.
2. Drain some of the saline solution from the tank by pulling the gun trigger.
3. Add some water into the tank to lower the concentration of the salt.
4. Turn on the *Disinfectant* button and try again.

• Recommendations of using salt

Component	Chemical symbol	Composition
Sodium	NaCl	more than 95%
Calcium	Ca	≤ 25mg/kg
Magnesium	Mg	≤ 8mg/kg
Potassium	K	≤ 78mg/kg
Iron	Fe	≤ 10mg/kg
Insoluble Sulfates	SO	≤ 1900mg/kg
Aluminum	Al	≤ 0.01mg/kg
Manganese	Mn	≤ 0.02mg/kg
Copper	Cu	< 0.1mg/kg

You can use general salt if it contains more than 88% of the NaCl.

You might encounter error although you use the regulated amount of saline solution, because it may vary depending on the water quality and temperature. To solve this problem, you have to reduce the amount of salt or add the tap water to lower the salt concentration.

3. Using refined salt > Cautions / Making saline solution

• **The ratio of water and salt.** ※The amount of salt may vary depending on the water quality.

① Measure salt using the *Measuring cup*. (200g or 100g)

※**Control the amount of salt depending on the salinity and salt type.**

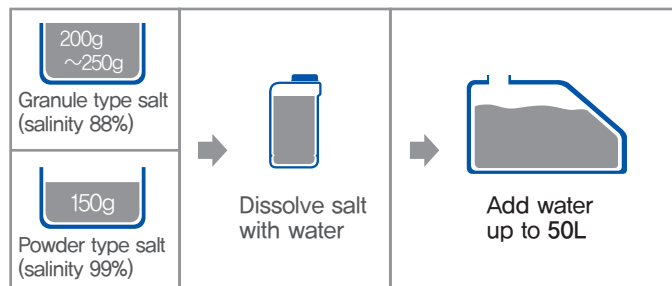
② Put the salt in the *Dilution bottle*.

③ Add the water up to 2/3 and shake the bottle sufficiently. (The salt have to be completely melted.)

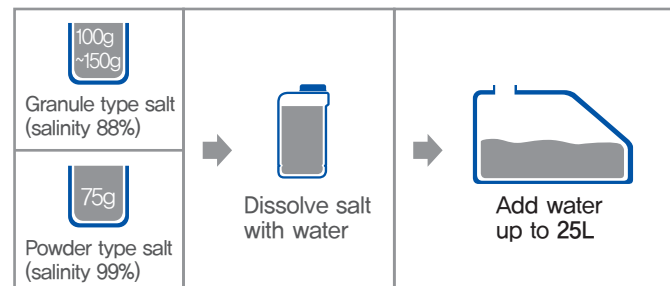
④ Pour the solution into the tank.

⑤ Add the water up to 50 or 25L line of the tank.

50L



25L



Correct measurement of salt
using *Measuring cup*



4. Inspection > Cautions / Troubleshooting / Replacement period & Block diagram

• Cautions when using disinfectant



1. Never mix disinfecting water with other disinfectant, abstergent and chemicals.
(But, it can be used with kitchen detergent in some case.)
2. If you have sensitive skin, wear protective equipment such as rubber gloves.
3. Do not use disinfectant in the cultivation of plants, animals, fish and shellfish, etc.
4. Be careful that the solution may bleach the colored textiles.
5. Be aware of the *Corrosion-resistant table* on the right side, so please wash it once with tap water after using.
6. Be sure to wash the *Metal-drainage-pipe* with tap water after using the large amount of disinfectant, because it may cause corrosion.
7. Chlorine concentration may be degraded by ultraviolet rays, high temperature or long period of time.
8. If the saline solution remains in the tank for an extended period of time, it may cause corrosion.
9. If you exceed the available chlorine concentration, rinse with tap water after using the disinfectant.

※Please do not spray on the materials which are listed on the right table marked as 'weak'.

- An analysis table for corrosion-resistant material

Materials	Corrosion resistance		
	weak	normal	strong
ABS resin			○
polyethylene			○
acrylic			○
polypropylene			○
teflon			○
silicon			○
epoxy resin			○
urea resin			○
Butyl-rubbe, NBR			○
natural, urethane rubber			○
titanium, glass, ceramics			○
stainless steel			○
plating, copper phosphor bronze	○		
brass	○		
aluminium alloy	○		
steel	○		

4. Inspection › Cautions / Troubleshooting / Replacement period & Block diagram

• Troubleshooting

Do not voluntarily modify or repair the parts inside the device.

Problems	Reasons	Solutions
The device does not operate.	<ol style="list-style-type: none"> 1. Power is not connected well. 2. It is loose or defective socket. 3. Supply voltage is too low. 4. <i>Earth leakage circuit breaker (ELCB)</i> is blocked. 	<ol style="list-style-type: none"> 1. Measure supply voltage and see if it is a proper range. 2. Check the power cord for cracking or try another socket. 3. Turn off the power and wait until the overheated motor cools down. 4. Turn on the ELCB again. Pull out a <i>Rubber stopper</i> and raise the <i>ELCB</i> switch on the left side of the body.)
The amount of spray is irregular.	<ol style="list-style-type: none"> 1. The amount of spray is too small. 2. Irregular spray. 	<ol style="list-style-type: none"> 1. Disconnect the nozzle from the gun and dust debris inside the each part, or use some pin to unblock the nozzle. (Make sure to turn off the power before, and do not look into the spray nozzle from the front.)
Pressure is too low.	<ol style="list-style-type: none"> 1. Air goes into the pump or the <i>High-pressure hose</i>. 2. <i>High-pressure hose</i> is blocked. 3. <i>Water supply pipe</i> is covered with scale or excessively aged. 	<ol style="list-style-type: none"> 1. Check if <i>High-pressure hose</i> is damaged or connecting parts worn out. 2. Clean up the hose or replace the parts. 3. Check the drain valve is opened and then close it certainly. 4. Check for any loose screw. 5. Contact the distributor you purchased from, (+82-1577-7544)

1. Please open the cover with screwdriver, and place the *Oil tray* in front of the motor.
2. Please open the cover ①, ② and drain the oil.
3. Fill certain amount of kerosene into ② and clean up.
4. After draining the kerosene, please fasten the cover ① with screwdriver and fill the oil into ②, and then close the cover.
5. Remove the *Oil tray* and fasten the last cover with screwdriver.

-
- A schematic diagram of a steam boiler system. The main boiler body is on the right, with a tall vertical chimney stack on top. To the left of the boiler is a large horizontal cylindrical component, likely a condenser or heat exchanger, with a circular access port labeled '1'. Above this horizontal component is a smaller, more complex assembly with a curved, ribbed top, labeled '2'.

[illegible]

※ The life time (approx. 10,000 hours) of the electrode may vary depending on water quality.

Certifications

• CE

Declaration of Conformity

D&D Electronics Co., Ltd.

207 Anayang Megavalley, 799 Gwangyang Dong, Dongan Gu,
Anyang City, Gyeonggi Do, South Korea

WE DECLARE UNDER OUR SOLE RESPONSIBILITY THAT THE PRODUCT:

PRODUCT : NaOclean
MODEL : DES-WA50

Reference Report No. : KST-C13-0038

TO WHICH THIS DECLARATION RELATES IS IN CONFORMITY WITH THE FOLLOWING STANDARDS AND THEREFORE BEARS **CE** MARKING:

EN 60335-2-68: 2008 used in conjunction with
EN 60335-1: 2002 + A11: 2004 + A1: 2004 + A2: 2006 +
A12: 2006 + A13: 2008 + A14: 2010 and EN 62233: 2008

FOLLOWING THE PROVISIONS OF THE APPLICABLE DIRECTIVES

MACHINERY DIRECTIVE 2006/42/EC

Authorized person Date 16. Apr. 2013
Name Seang Soo Signature [Signature]

- ISO 9001
- Certificated INNO-BIZ

• KFDA Health Certificate

DocNo : 0039F-E080-9108-7940

KFDA 식품의약품안전청
8129 Jang-Jung, Nam-gu, Incheon, 402-815, Republic of Korea, Tel : 82-32-442-4463 ~ 5, Fax : 82-32-442-4886
Serial No. : KFDA-ITD-201205-06552

HEALTH CERTIFICATE

TO WHOM IT MAY CONCERN : 05 /08 /2012

KFDA certifies that the following products are manufactured, distributed and fit for human consumption with compliance and supervision under the Food Sanitation Act of the Republic of Korea.

Name and address of production establishment : D&D Electronics Co., Ltd. 207 Megavalley, 799 GwangyangDong Anyang Gyeonggi-do, South Korea

Country of destination : United Kingdom of Great Britain

Name and address of consignee : D&D Electronic Co., Ltd. 207 Megavalley, 799 GwangyangDong Anyang Gyeonggi-do, South Korea

Name and address of consignee : Deighton Manufacturing (UK) Ltd, Gibbon Street, Bradford, West Yorkshire BD1 3YR, England

Remarks :

Sincerely Yours,
Kim, You-bi
Gyeongjin Regional Office
Director of Customer Support Division
Gyeongjin Regional Food & Drug Administration
Republic of Korea

1/2

This certificate may be confirmed with the original copy on Korea Food & Drug Administration (<http://kfdam.fda.go.kr/>).

Country of destination: Australia, Indonesia, Malaysia, Singapore, Thailand, United Kingdom of Great Britain.

• Residual Chlorine test report

YOUR PARTNER FOR THE BEST QUALITY
(Registered Copy)
TEST REPORT

7-4, Gamsil-Ri, Wajong-Myeon, Gyeonggi-Do, KOREA TEL 82-31-989-0880 FAX 82-31-989-3001
Report No : T-49-00396
Client : SOOCHU, INC.
D&D Electronics Co., Ltd.
88 ANAYANG MEGAVALLEY 799, GWANGYANG-DONG, DONGAN-GU, ANYANG-CITY, KYUNGGI-DO, KOREA
Sample : "NaOClean"Disinfectant Generators(Vegetables & Fruits)

Receipt Date : Dec.12,2012
Test Completion Date : Dec.24,2012

TEST RESULTS			
TEST ITEM	UNIT	SAMPLE	RESULT
Residual Chlorine	mg/L		100 mg M (100 : 200)

USAGE : QUALITY CONTROL

NOTE : 1. The test results on this test report are only limited to the samples and sample names provided by the customer and KTR do not guarantee the quality of all products of the customer.
2. This test report shall not be used for public relation, advertisement, lawsuit and any other purposes outside the scope of its defined range.

TEST RESULTS			
TEST ITEM	UNIT	SAMPLE	RESULT
Residual Chlorine	mg/L		200 mg M (100:200)

USAGE : QUALITY CONTROL

NOTE : 1. The test results on this test report are only limited to the samples and sample names provided by the customer and KTR do not guarantee the quality of all products of the customer.
2. This test report shall not be used for public relation, advertisement, lawsuit and any other purposes outside the scope of its defined range.

This test certificate is the accredited test results by Korea Laboratory Accreditation Scheme, which signed the ILAC-MRA.

K

KTR KOREA TESTING & RESEARCH INSTITUTE
Korea Testing & Research Institute

1 of Total : 1 Page(s)

• Patents & Patent-pending

- Water cleaning disinfectant generating and spraying device (Patent 10-0730612)
- Portable disinfectant generator (Utility model 20-0425129)

Quality Warranty

Product Name	High-pressure disinfecting washer NaOClean-S
Model	DES-WA50
Warranty Period	One (1) year from the date of purchase
Date of purchase	
Purchaser :	
address	
Point of purchase :	
address	

• Regulations of Product Warranty

- This product was manufactured through strict quality control and inspection.
- Services arising from failure that takes place after the expiry of the warranty period will be charged for.
- During the warranty period, one year from the date of purchase, this product shall be serviced free of charge as far as manufacturing defect is concerned.
- This product is warranted in accordance with the description on the quality warranty.



+82-1577-7544

• How to request for service

- If you find any abnormality or have a question while using this product, please contact a nearby distributor or our head office.
- In order to request for services, you need to present this quality warranty duly filled out. Therefore please keep it carefully. In case you get charged services, please make sure to keep the receipt carefully.

• Consumer damages compensation

- **Free services:** For any failure related to the function and performance of the product that takes place in the course of normal operation within the warranty period.

- Charged services

1. When the warranty period has expired;
2. During the warranty period, if failure was caused by;
 - Careless handling of the product.
 - Unauthorized repair or alteration of the product.
 - Damage during transportation due to mishandling.
 - Connection to a wrong power.

※ Please fill out the quality warranty completely and keep it carefully.



Anyang MegaValley No. 207, 799 Gwanyang 2-dong, Dongan-gu, Anyang,
Gyeonggi-do, Korea.

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web. **www.dndele.com**

e mail. **dndele@dndele.com**

This manual was written as of October, 2013.
The content is subject to changes due to continued research and development.